Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Expanding the Economic and Innovation	)	Docket No. 12-268
Opportunities of Spectrum Through Incentive	)	
Auctions	)	

To: The Commission

Comments of the School Board Of Miami-Dade County, Florida

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SUMMARY

The processes proposed in the Notice of Proposed Rule Making (NPRM) are an assault on the First Amendment rights of broadcasters and the public. They deprive the public of valuable service without notice or an opportunity to be heard.

The NPRM's proposals violate Section 307(b) of the Communications Act. They destroy the rights of states and communities to the television allotments needed to provide local transmission service. The NPRM repacking process threatens loss of television reception service, a loss that is prima facie inconsistent with the public interest.

The NPRM's auction process is rigged in favor of large foreign-financed wireless interests and can be expected to destroy domestic jobs, harm the United States' economy, reduce competition and diversity in television broadcasting, and eliminate valuable service to the public.

The NPRM's proposals are particularly harmful to non-commercial educational broadcasters, a segment of the television industry that is devoted to the educational and informational needs of the public in general and of children in particular.

The entire NPRM proceeding is based on the false premise that wireless broadband providers are experiencing service problems that can only be resolved through expanding wireless spectrum allocations. In fact, technology exists to address the service problems wireless providers experience and the public interest would be better served if the wireless industry invested in infrastructure improvements, instead of purchasing broadcast spectrum.

If the NPRM proceeding goes forward (and it should not), then care must be taken to insure that no person currently receiving over-the-air service from any television broadcast station loses service. All expenses of television licensees required to reconstruct their facilities should be reimbursed. No arbitrary time constraints should be placed on the forced reconstruction of broadcast stations.

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Comments of the School Board
Of Miami-Dade County, Florida

The School Board of Miami-Dade County, Florida ("Miami-Dade County Public Schools" or "MDCPS") submits the following comments in response to the proposals set out in Notice of Proposed Rulemaking Docket No. 12-268, 27 FCC Rcd 12357 (2012)(the "NPRM").

The Facts

A. About MDCPS

MDCPS operates the fourth largest school district in the United States, serving over 345,000 students in more than 392 schools. It is the largest single employer in Miami-Dade County, Florida, employing over 40,000 wage earners.

Miami-Dade County, Florida is an area of economic extremes. The County's beach communities and wealthy suburbs are home and playground to the very wealthy. However, the City of Miami, itself, the City of Hialeah, agricultural areas like Homestead, Florida City and the County's Redlands have large immigrant populations and significant poverty. Twenty-Two (22%) percent of the children in Miami-Dade County live in poverty. A

large number of our economically disadvantaged children are from racial or ethnic minorities.[1] Educating these children is a matter of special importance to Miami-Dade County Public Schools.

The School Board of Miami-Dade County is the licensee of non-commercial, educational television ("NCE TV") station WLRN-TV, Miami, Florida. Like the county it serves, the School Board of Miami-Dade County has significant minority and female leadership. Two of the nine Board Members are African-American; five are Hispanic; and five are women.

MDCPS has operated WLRN-TV since the station went on the air in 1962. Station WLRN-TV is the PBS Ready to Learn Station serving Miami-Dade, Broward and Monroe Counties, Florida. Miami-Dade County Public Schools use over the air television from Station WLRN-TV to prepare children to succeed at school[2]. WLRN-TV is an indispensible means of reaching economically disadvantaged families and providing parents and children the tools needed to achieve success in school.[3]

The importance of non-commercial educational television in Miami-Dade County is underscored by the significant capital investment MDCPS has made in its digital television transmission facilities. In connection with the transition of television broadcasting from analog to digital technology, the School Board completely rebuilt its television station, erecting a 1,000 foot tower and constructing a new 5,700 square foot transmitter building housing the transmission facilities of MDCPS' radio and television stations. The television station studios

[1] According to the US Census Bureau's 2009-2011 American Community Survey, 56 percent of those Miami-Dade children living in poverty are Hispanic and 38 percent are African American.
[2] Station WLRN-TV broadcasts the complete lineup of PBS children's programming Monday through Friday from 6:00 AM to 7:00 PM. A copy of its children's programming schedule and an associated description of the content of each program are appended hereto as Exhibit A.
[3] This is particularly important in the case of preschool age children. Children now learn to read in kindergarten. They need to know letters and sounds (and numbers, shapes, colors, etc.) before starting school or they will lag behind their classmates.

were converted from analog to digital origination technology. This construction project took four (4) years to complete and cost approximately Nine Million Dollars.

Approximately seventeen (17%) percent of Station WLRN-TV viewers receive the station over-the-air. In reconstructing Station WLRN-TV, MDCPS took great care to maximize the television power and coverage of its Channel 20 digital facilities because its engineers knew that the reduced effective radiated power levels required for digital transmission would hamper economically disadvantaged families in their efforts to receive television service using indoor reception equipment. Over the air reception difficulties for Miami-Dade economically disadvantaged families were also created by the initial high cost of digital television sets and the poor quality digital converter boxes marketed as a means of allowing analog television sets to receive digital signals.

During the reconstruction of Station WLRN-TV, MDCPS negotiated and implemented arrangements to transition its thirteen (13) channels of Educational Broadband Service (EBS) stations from the original ITFS analog band plan to the new EBS digital band plan. EBS reception facilities in over three hundred schools were refurbished. EBS origination facilities were rebuilt using digital equipment. MDCPS and other educational interests in Miami-Dade County entered into agreements with Clearwire Spectrum Holdings II LLC leasing the excess capacity of the EBS A Group, B Group, C Group, D Group and F Group channels in the County. Collectively, the leased channels represent the capacity of approximately eighteen EBS channels, with two additional high-power downstream EBS channels reserved for MDCPS' educational broadband programming to students.

B. About Television Spectrum

As originally allocated in Sixth Report and Order on Television Assignments, 41 FCC 148 (1952), the broadcast television spectrum consisted of VHF television channels 2 through 13 and UHF television channels 14 through 83. Today, after the conversion of television from analog to digital technology, VHF channels 2, 3, 4, 5 and 6 are seriously compromised, perhaps unusable, due to impulse noise disrupting digital signals in that spectrum. Channels 14 through 20 in several television markets have been devoted to wireless interests operating in the so-called "T-Band."[4] UHF television channels 52 through 83 have been reallocated to various wireless interests. UHF Channel 37 is devoted to radio astronomy. VHF television channels 7 through 13, like the lower band VHF channels, have had their effective radiated power limits reduced to a level that does not allow VHF television stations to be received by indoor reception equipment, even within the city grade signal of the stations. These changes leave the greatly reduced remaining UHF television spectrum as the only practical means of serving over-the-air television viewers who are not employing outdoor television reception equipment. Over-the-air television viewers include persons residing in economically disadvantaged households, who are not able to pay for cable television or satellite television service or for installing outdoor television reception equipment. These are the viewers who will benefit most from WLRN-TV's PBS Ready to Learn Programming.

C. About Non-Commercial Educational Television

As of June 30, 2012, there were 1,783 television stations in the United States, 396 of which were non-commercial educational stations.[5] Eligibility to hold these few non-commercial stations is limited to non-profit educational organizations demonstrating that the

[4] A portion of the T-Band is used in Miami-Dade County.
[5] See Broadcast Station Totals as of June 30, 2012 (FCC July 19, 2012) appended hereto as Exhibit B.

proposed stations will be used primarily to serve the educational needs of the community, to advance educational programs and to furnish a nonprofit and noncommercial television broadcast service.[6]

Funding for many of the programs shown on noncommercial educational stations comes from the Corporation for Public Broadcasting ("CPB"), a corporation established pursuant to Section 396 of the Communications Act of 1934, as amended, 47 U.S.C. § 396. Section 396 clearly recognizes the public interest value of noncommercial educational broadcasting, declaring Congress' finding that:

> (1) It is in the public interest to encourage the growth and development of public radio and television broadcasting, including the use of such media for instructional, educational, and cultural purposes;
>
> (2) it is in the public interest to encourage the growth and development of nonbroadcast telecommunications technologies for the delivery of public telecommunications services;
>
> (3) expansion and development of public telecommunications and of diversity of its programming depend on freedom, imagination, and initiative on both local and national levels;
>
> (4) the encouragements and support of public telecommunications, while matters of importance for private and local development, are also of appropriate and important concern to the Federal government;
>
> (5) it furthers the general welfare to encourage public telecommunications services which will be responsive to the interests of people both in particular localities and throughout the United States, which will constitute an expression of diversity and excellence, and which will constitute a source of alternative telecommunications services for all the citizens of the Nation;

[6] See 47 CFR § 73.621.

> (6) it is in the public interest to encourage the development of programming that involves creative risks and that addresses the needs of unserved and underserved audiences, particularly children and minorities;
>
> (7) it is necessary and appropriate for the Federal Government to complement, assist, and support a national policy that will more effectively make public telecommunications services available to all citizens of the United States;
>
> (8) public television and radio stations and public communications services constitute valuable local community resources for utilizing electronic media to address national concerns and solve local problems through community programs and outreach programs;
>
> (9) it is in the public interest for the Federal government to ensure that all citizens of the United States have access to public telecommunications services through all appropriate available telecommunications distribution technologies; and
>
> (10) a private corporation should be created to facilitate the development of public telecommunications and to afford maximum protection from extraneous interference and control.[7]

Indeed Congress once deemed non-commercial educational broadcasting so important that, historically, it funded the construction of numerous non-commercial educational broadcasting projects throughout the United States under a program administered by the Secretary of Commerce. The Communications Act provides the following Congressional declaration of purpose of the Public Telecommunications Facilities Program ("PTFP"):

> The purpose of this subpart is to assist, through matching grants, in the planning and construction of public telecommunications facilities in order to achieve the following objectives: (1) extend delivery of public telecommunications services to as many citizens of the United States as possible by the most efficient and economical means, including the use of

[7] See 47 U.S.C. § 396(a).

> broadcast and nonbroadcast technologies; (2) increase public telecommunications services and facilities available to, operated by, and owned by minorities and women; and (3) strengthen the capability of existing public television and radio stations to provide telecommunications services to the public.[8]

D. About Children's Television Programming.

Congress requires broadcast stations to serve the educational and informational needs of children in their overall programming including programming designed to serve children's needs.[9] The single greatest source of free over-the-air video programming serving the educational and informational needs of children is non-commercial educational television broadcasting. MDCPS' Station broadcasts educational and informational children's programming from 6:00 AM to 7:00 PM, Monday through Friday, a total of 65 hours of children's programming per week.

E. About Television Ownership

As previously noted noncommercial educational television broadcasting is limited to not for profit educational entities seeking to provide a noncommercial educational service to their communities. Commercial television broadcasters, while not subject to these limitations, face significant ownership limitations, themselves. Section 310 of the Communications Act has been interpreted by the FCC to limit foreign ownership in entities controlling broadcast licensees to 25 percent of voting power and to 25 percent of equity. In all but the largest television markets, commercial television licensees are limited to one 6 MHz television channel. The maximum number of television channels a commercial television licensee may control in any

[8] See 47 U.S.C. § 390. Unfortunately Congress terminated PTFP in fiscal year 2011.

[9] See 47 U.S.C. § 303b

single television market is two 6 MHz channels.[10] Cross-ownership rules limit common ownership of television stations and daily newspapers and of television and radio stations serving the same areas.[11]

F. About Wireless Ownership

The owners of wireless systems face far fewer ownership limits than the owners of broadcast television stations. Wireless carriers have virtually unlimited access to foreign capital. For instance, the largest United States wireless operator, Verizon, is 45 percent owned by the largest wireless operator in the world, the British carrier Vodafone. The wireless carrier Sprint Nextel is in the process of being acquired by the Japanese wireless carrier, SoftBank. The wireless carrier T-Mobile is a subsidiary of Deutsche Telekom, a German company formed to assume part of the state-owned telecommunications monopoly formerly run by the Deutsche Bundespost. The FCC prohibits television stations from achieving anything approaching these levels of foreign ownership.

Unlike broadcasters, wireless operators have no fixed limits on the amount of spectrum they can hold. Instead the Commission uses a case-by-case analysis of potential competitive harm, considering market concentration measured by the Herfindahl-Hirschman Index ("HHI") and the amount of spectrum available on a market-by-market basis for the provision of mobile telephony/broadcast service. See Policies Regarding Mobile Spectrum Holdings, 27 FCC Rcd 11710, 11712-11715 (2012). Currently, this analysis does not consider all wireless broadband spectrum, and it is possible for individual wireless operators to aggregate more than 100 MHz in a market. Indeed, in Miami-Dade County, Florida, a single carrier has aggregated EBS/BRS spectrum encompassing Channels BRS1, BRS2, A1-A4, B1-B4, C1-C4,

[10] See 47 C.F.R. § 73.3555.
[11] Id.

D1-D4, E1-E4, F1-F4, and H1-H3. This represents over 163 MHz of spectrum, roughly the equivalent of 27 television channels. This contrasts to the fifteen (15) television channels (90 MHz of spectrum) devoted to all of the full power television broadcasting in the three counties comprising the Miami-Fort Lauderdale Television Market.

G. About the Cost to the Public of Spectrum Auctions

The use of auctions to allocate spectrum among licensees imposes significant costs on the American public's use of electronic communication. To date the FCC has completed eighty-one auction proceedings amassing net winning bids totaling $78,064,631,000.[12] The communications companies paying this astronomical sum for use of a public resource (which the United States acquired by fiat) must recoup their investment and obtain a return on investment. With respect to the present NPRM proceeding, there are reports that Congress expects the auction to generate $24,000,000,000[13]. This equates to a charge of approximately $80 for every man, woman and child in the United States.

While the costs of auctioned licenses are astronomical, they do not represent the true cost to the American public of the FCC's spectrum auctions. Specifically, in order to obtain spectrum for wireless auctions, the Commission converted over-the-air television broadcasting from analog to digital modulation. This forced conversion required every television station in the United States to build a second transmission facility and to operate a separate analog and a separate digital station, transmitting identical programming throughout an extended digital television transition period. In many cases, stations were required to reconstruct

[12] See Exhibit C appended hereto.

[13] As of January 16, 2013, the Congressional website of Congressman Lee Terry displayed a January 9, 2012 article to the effect that raising $24,000,000,000 is a major reason Congress enacted the legislation authorizing the television incentive auction. See Exhibit D, appended hereto.

their original digital facilities in order to move to "post-transition" digital channels. Additionally digital television stations operating in the VHF band found over-the-air reception of their digital signals seriously degraded by levels of noise unanticipated by the Commission' new television engineering requirements and by an inability to penetrate buildings.

On the consumer side of the digital television transition, every analog television set and associated analog video recorder in 114,900,000 United States television households was rendered obsolete. Assuming two television sets per television household[14] at a modest $200 per set, the obsolescence of analog television receivers, alone, imposed a cost to consumers of $45,960,000,000.[15] Consumers retaining their analog sets were required to either (a) connect them to cable or satellite television service or (b) purchase outdoor receiving antennas[16] and digital converter boxes.

The present "voluntary" auction proceeding proposed in the NPRM[17] is to be swiftly followed by a completely involuntary repacking of the television spectrum, once again requiring television stations to rebuild their facilities. Either directly through payments to broadcasters or indirectly through the increased cost of communications, the American public will bear the cost of reconstructing these television stations. Further, these reconstructed television stations are not presently guaranteed to have the same over-the-air reception

[14] The U.S. Census says the average was 2.6 sets per home in 2005.
[15] This was the cost of obsolescence. The cost to consumers of replacing 229,800,000 analog television sets with new digital television sets and replacing all associated analog video recording devices with digital recording devices would be much, much higher.
[16] The 80% reduction in television ERP associated with the digital transition seriously affected indoor television reception.
[17] As explained hereafter, the auction process is voluntary only insofar as it involves licensees turning in authorizations for cancellation. Ordinarily this action would create a vacant television allotment which could then be used to provide new television service to a community. However, the NPRM proposes a procedure that will destroy each affected community's television allotment without conducting any proceeding under Section 307(b) of the Communications Act. There is nothing whatsoever voluntary about this aspect of the NPRM's process.

capabilities as existed before the involuntary repacking. So the public's burden in this involuntary restructuring of broadcast television will include further loss of free over-the-air television service, a loss generally regarded as prima facie inconsistent with the public interest. See Hall v. FCC, 237 F.2d 567 (D.C. Cir. 1956). Sadly, members of the public working for a "voluntarily" terminated television station will bear a more immediate and painful burden. These Americans will be unemployed because their own government induced their employer to go out of business.

Another unstated cost of the "voluntary" television spectrum auction is the huge element of uncertainty it injects into the future of over-the-air television. The FCC plans to reclaim 120 MHz of UHF television spectrum[18]. However, the UHF band is now the only television spectrum suitable for over-the-air digital broadcasting to indoor receiving equipment. According to some reports, the current "voluntary" auction is unlikely to obtain sufficient spectrum achieve the FCC's 120 MHz goal. So where does that leave television broadcasters? Is the Federal Government determined to repack the television band again and again until it reaches its 120 MHz goal? Ultimately government-induced uncertainty could end all prospects for future investment in free over-the-air television broadcasting. This is a terrible burden on an industry with a long record of service to the American public.

H. About Spectrum Shortages

There is a shortage of spectrum for over-the-air television service. This shortage was created when the Commission removed channels 52 through 69 from the television band and converted television to digital modulation, without accounting for impulse noise in the lower VHF band and without any technical solution to lack of building penetration caused by

[18] This goal to acquire spectrum equivalent to 20 UHF television channels is set out in Federal Communications Commission, Connecting America: The National Broadband Plan (2010).

greatly reduced ERP levels for digital VHF stations. Surprisingly, the government's answer to this television spectrum shortage is to auction additional UHF television spectrum for wireless use. So the question arises, where is the spectrum for continued television service to communities to be found? The apparent answer is "nowhere".

On the wireless broadband side of the spectrum equation, very significant amounts of spectrum have already been devoted to wireless operations but demand for wireless broadband continues to grow. This poses a genuine problem. Fortunately rational wireless system design can employ existing technology to meet many of the challenges posed by high demand for broadband wireless services. As explained in the attached article "The Spectrum Crunch That Wasn't", Talbot (MIT Technology Review, November 26, 2012), [19]spectrum shortages will likely be experienced as temporary, localized events. Technology currently exists that can minimize or even eliminate these types of temporary local problems. Mr. Talbot goes on to explain that one factor contributing to the future wireless spectrum crunch is inefficient spectrum management. Another is the failure of wireless operators to deploy advanced technologies such as small cell technologies and alternative offloading technologies. Mr. Talbot concludes that ultimately technology will allow mobile users to increase download speeds ten-fold in the existing wireless spectrum.

The availability of technology to address current broadband wireless deficiencies raises the following issue: What would happen if the $24,000,000,000 that is supposed to be raised in the "voluntary" auction of UHF television spectrum were devoted to improving existing wireless broadband networks? As demonstrated in the attached testimony of Scott D. Ritchie, a $24,000,000,000 investment in our national broadband wireless infrastructure

[19] See Exhibit E, hereto.

could materially and immediately improve broadband capacity without eliminating a single existing UHF television service.[20]

Comments

MDCPS submits that the NPRM outlines a process that is an unnecessary and substantial burden on the free speech of television broadcasters and television viewers, alike. The certain effect of the NPRM's proposals will be to decrease competition and diversity in television broadcasting; to reduce over-the-air television service to states and communities; to deter investment in television broadcasting; to destroy American jobs; to concentrate domestic spectrum in the hands of foreign interests; and to stifle innovation in wireless system design and deployment. For these reasons and numerous others outlined below, the Commission should substantially modify or abandon the process initiated in the NPRM.

I. There Is No Public Interest Rationale For The NPRM's Auction Proceeding

The public has already paid a very high price as a result of the government's past decisions to allocate spectrum through the auction process. The present auction proceedings, if successful, will remove $24,000,000,000 from the United States' economy and eliminate the further economic contribution to the economy of numerous individual television stations. Jobs will be lost in broadcasting and in broadcasting-related industries. Television service will be reduced in numerous communities. The economy will suffer.

If the government truly seeks to create jobs, to encourage technological innovation and to foster economic development, it should abandon this auction and, instead, encourage wireless carriers to invest in their existing networks. The money that would otherwise go to the auction could be devoted to developing and deploying advanced mobile network technologies,

[20] See Exhibit F, hereto.

creating jobs, fostering technological innovation and improving wireless broadband service. There would be no reduction of television service or television employment or the contribution of television and related industries to the economy. A rational communications policy for the United States would strive for this type of result.

II. The NPRM Proceeding Is An Unconstitutional Burden on Free Speech and should be Abandoned

The First Amendment rights of television broadcasters and television viewers have been severely and unnecessarily burdened by the actions of Congress and its agencies to allocate a medium of mass communication via the auction process. Essentially, the Federal Government has nationalized a medium of communication, television spectrum, and is in the process of selling it without regard to the service that bidders will provide to the public.

The Federal Government's massive spectrum reallocation enterprise has already resulted in direct charges to industry totaling $78,064,631,000. The auction process has been especially burdensome to television broadcasters and the viewing public. They have been required to bear the enormous costs associated with replacing the analog television origination, transmission and reception facilities in the United States with new digital facilities, all for the purpose of facilitating government spectrum auctions. Other auction costs imposed upon the public include the loss of service from new VHF digital broadcast facilities due to low band VHF impulse noise and the inability of reduced power digital VHF signals to penetrate buildings. The auction process proposed in the NPRM will impose additional costs on broadcasters and the public including loss of television service, loss of jobs and costs of repacking television spectrum.

Not only have television broadcasters and viewers borne the economic brunt of the government's spectrum auction process, they have been excluded from its benefits. Unlike

wireless operators, broadcast licensees cannot amass one hundred megahertz of spectrum in a single market. Congress and its agencies deny broadcasters access to the foreign capital that is fueling expansion of the largest wireless operations in the United States. Government regulation of television broadcasting has left broadcasters incapable of competing with wireless carriers for the spectrum both industries use to conduct their businesses. Even the largest television broadcast companies are cottage industries compared to the wireless companies seeking to acquire television spectrum.

The competitive disparity between wireless carriers and broadcasters is at its greatest in the case of non-commercial educational broadcasters. NCE TV broadcasters are funded through the public's contributions, institutional grants and government monies. Congress has dramatically reduced funding of NCE TV operations. NCE TV stations simply have no ability to compete for broadcast spectrum in an auction environment. The reallocation of NCE TV spectrum to wireless carriers through an auction process is manifestly unfair to NCE TV stations, their viewers, and the communities they serve.

MDCPS submits that meaningful limitations remain on government power to destroy broadcast speech. The NPRM's proposal to auction spectrum, a medium of mass communications, in a process that is rigged to favor large internationally-financed wireless operators certainly infringes on the First Amendment rights of United States broadcasters and the American public. Congress could not nationalize newsprint and then refuse to sell it to a class of domestic newspapers. Congress could not decide that New York City needs to relinquish a daily newspaper. Yet that is what Congress is doing with the auction of UHF television spectrum, facilitating the profit of wireless interests and obliterating the speech of television broadcasters and the communities they serve.

MDCPS submits that the NPRM's process, coming on the heels of the massive and expensive restructuring caused by the transition to digital television broadcasting, is a particularly burdensome and wholly unnecessary impediment to the exercise of free speech by television broadcasters. It denies broadcasters access to the spectrum on which their speech depends. It deprives communities the benefit of their local television allotments on which over-the-air television service depends. It injects a level of regulatory uncertainty into television broadcasting that impedes broadcasters' access to the credit and investment necessary for their continued survival. The NPRM's effect, if not its purpose, is to silence the free flow of information from United States television broadcasters to the American public. It is, therefore an unconstitutional denial of First Amendment freedoms and the NPRM process should be abandoned.

III. The NPRM Process Deprives The Public Of Its First Amendment Right To Petition The Government For Redress Of Grievances

The broadcasting rights that will be extinguished through the "voluntary" auction proceedings include both the broadcaster's license to operate a television station and the community of license's right to a television allotment for the purpose of providing a local transmission service. Each television allotment was created through a notice and comment rulemaking process separate and apart from the notice and comment licensing proceeding that awarded the broadcaster's television license. In each of these two proceedings, the public was given notice and an opportunity to participate in a process that affected their access to speech, i.e. their access to free over-the-air television service.

While it is possible to view the return of a broadcast license for cancellation as a voluntary act, the extinguishment of a separate independent right of a community to a television

allotment is a far different matter. Television allotments are assigned in proceedings conducted pursuant to Section 307(b) of the Communications Act, which requires a fair, efficient and equitable distribution of radio service among the several states and communities of the United States. The rights of these states and communities (and their inhabitants) to radio service are the central considerations in Section 307(b) proceedings and these are public, not private, rights.

The NPRM proposes to extinguish the rights created through both the allotment process and the licensing process without any prior notice or opportunity to be heard by the affected members of the public. No one will even know what allotments or licenses are being extinguished because the identity of participants in the reverse auction process can be kept secret. Even comments filed in this rulemaking proceeding by licensees seeking to extinguish their communities' allotments may be filed anonymously.

There is no public interest policy justifying the prevention of public participation in a process that will deprive communities of television service. The public has a First Amendment right to petition the government for redress of grievance. While the process set out in the NPRM may be embarrassing for some participants, that is no reason to deprive affected communities and their inhabitants prior notice and an opportunity to be heard before they lose both (a) an over-the-air television service and (b) the channel allotment that would otherwise permit local community members to apply to restore lost broadcast service. The First Amendment to the United States' Constitution, the Administrative Procedure Act[21] and the Communications Act of 1934, as amended,[22] require an opportunity for meaningful public participation before a community's television station or its television allotment is eliminated. The NPRM's proposed processes deprive the public of its rights.

[21] See 5 USC Sections 553, 554 and 558.
[22] See 47 USC Section 307(b).

IV. Non-commercial Educational Broadcasters Should Be Exempt From The NPRM's Processes

There are relatively few non-commercial educational television stations. Many like WLRN-TV are owned by governmental entities. All are non-profit educational entities serving the educational needs of their communities. In the case of PBS Ready-to-Learn stations, such as WLRN-TV, non-commercial educational stations devote very substantial amount of broadcast time and resources to programs addressing the educational and informational needs of children.[23] Subjecting NCE TV stations to the type of repeated spectrum repacking/facilities reconstruction regime created in the NPRM disrupts their operations, drains their resources and impedes the achievement of their public service objectives. The NPRM's proposal to allow additional interference to NCE TV stations in connection with the spectrum repacking process is further reason to exempt the providers of non-commercial educational television service from the NPRM's processes. Sacrificing the public's investment in effective broadcast transmission systems serving the educational needs of children is not even remotely in the public interest.

Finally, many NCE TV licensees have already provided significant amounts of spectrum for wireless broadband use. MDCPS, for instance, has leased EBS channels A1-A4, C1-C4, D4, and F1-F4 for wireless broadband uses. Having provided the capacity of eleven EBS channels[24] to help meet wireless broadband needs, it is unreasonable for the government to seek additional sacrifices from MDCPS or similarly situated NCE licensees. Indeed it is particularly unreasonable that over-the-air non-commercial educational television service to children should

[23] WLRN-TV broadcasts the PBS Children's Television Programming line-up from 6 AM to 7 PM, Monday through Friday.

[24] The channel capacity of Channels A4 and D4 continues to be used to provide educational programming to MDCPS students.

be sacrificed, when wireless broadband interests can be well served without use of NCE TV spectrum if only wireless carriers were willing to invest in state of the art wireless infrastructure.

V. There Should Be No Involuntary Repacking of the Television Spectrum Unless Service to Existing NCE TV Viewers is Preserved

MDCPS seeks to preserve the ability of WLRN-TV to provide specialized local non-commercial television service to the children of Miami-Dade, Broward and Monroe Counties, Florida. There is no legitimate reason that any child presently receiving Station WLRN-TV's signal should be deprived of over-the-air educational television programming. MDCPS has a First Amendment right to provide this programming and each child presently receiving this programming has a First Amendment right to receive it. There is a significant public interest in the continued ability of NCE TV viewers to receive this service.

Station WLRN-TV's programming serves an important government function provided at significant expense by a governmental arm of the State of Florida. Station WLRN-TV should not be required to accept any additional interference or lose coverage of any person or area it presently serves. If the wireless industry invests funds in state of the art communications facilities and technological innovation, it can significantly improve wireless broadband service, without imposing additional burdens on NCE TV broadcasters and their viewers.

VI. There Should Be No Involuntary Repacking of the Television Spectrum Until All Remaining TV Licensees Are Paid Their Rebuilding Costs

MDCPS has already invested large sums in converting its UHF television facilities to digital broadcasting. There is no technical reason to rebuild these new facilities and the policy reasons for rebuilding these facilities proffered in the NPRM could be substantially met through rational investment in wireless infrastructure.

If the Federal Government requires MDCPS to rebuild its new television transmitting facilities, the Federal Government should provide all of the funds for this project. While Congress has earmarked $1,750,000,000 to reimburse broadcasters for the costs of rebuilding stations to accommodate the UHF spectrum repacking process, there is no certainty that these funds will be sufficient to meet broadcaster expenses, especially in light of the great uncertainty inherent in the auction process, itself. It is bad enough that the Federal Government is advancing plans that will disrupt the School Board's performance of its educational mission. There is no reason MDCPS should be required to pay for this unnecessary and burdensome process.

VII. The Involuntary Reconstruction of Broadcast Stations In The Repacked Television Spectrum Should Not be Subject to Arbitrary Time Constraint

Any interference with MDCPS' operation of WLRN-TV's new UHF television facilities impedes an important governmental function, namely the education of children in Miami-Dade, Broward and Monroe Counties, Florida. Some disruption of this function will likely occur if MDCPS is forced to rebuild its DTV transmission facilities.

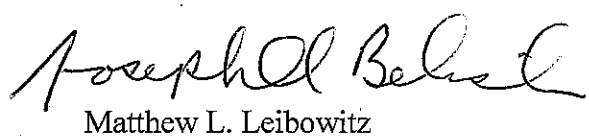
However, MDCPS' continued ability to serve the non-commercial educational needs of WLRN-TV's service area should not be placed in jeopardy by time constraints imposed upon the involuntary reconstruction of WLRN-TV's facilities. As previously noted, there are no genuine public interest considerations served by forced repacking of the television spectrum. The improvements in wireless communication achieved through the repacking process could be attained through investment in technological innovation and deployment of state of the art wireless technology. That being the case, no time constraints should be placed on MDCPS' reconstruction of WLRN-TV, other than a requirement that MDCPS act in good faith to

reconstruct the facility within a reasonable period. The duration of a reasonable period should be determined solely by conditions as they exist during the time the station is being reconstructed. Any other standard is arbitrary, particularly when the construction project does not benefit MDCPS or its constituents and is being undertaken solely to accommodate goals that are attainable by other means.

Conclusion

MDCPS submits that the NPRM processes violate the rights of television broadcasters, television viewers and the communities and states entitled to receive television broadcast service. Nevertheless, MDCPS' goal in this proceeding is modest. It seeks the assurance that it can continue to provide the parents and children of WLRN-TV's existing over-the-air coverage area with a non-commercial educational service designed to prepare children to succeed in school. This is not too much to ask. Since the legitimate objectives of the NPRM are achievable by means other than the wholesale restructuring of UHF television broadcasting, it is only just and equitable that all costs incurred by MDCPS in any forced reconstruction of WLRN-TV's facilities be reimbursed and that any transition process be free from arbitrary and burdensome time constraints.

Respectfully submitted,



Matthew L. Leibowitz
Joseph A. Belisle
Counsel for
The School Board of Miami-Dade County, Florida

January 25, 2013
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Miami, Florida 33137

Exhibit A

WLRN-TV Children's Programming

Channel 17
PBS Children's Programming

Time	Monday - Friday
6am	Clifford the Big Red Dog
6:30 am	Martha Speaks
7 am	Curious George
7:30 am	Super Why!
8 am	The Cat in the Hat
8:30 am	Dinosaur Train
9 am	Sesame Street
10 am	Daniel Tiger's Neighborhood
10:30 am	Curious George
11 am	Clifford The Big Red Dog
11:30 am	Sid the Science Kid
12 noon	Bob the Builder / Thomas & Friends
12:30 pm	Peep and the Big Wide World
1 pm	Super Why!
1:30 pm	Angelina Ballerina
2 pm	The Cat in the Hat
2:30 pm	Curious George
3 pm	Sesame Street
4 pm	Word Girl
4:30 pm	The Electric Company
5 pm	Arthur
5:30 pm	M-Th Wild Kratts / Fri - Enertips
6 pm	Cyberchase
6:30 pm	Word Girl

wlrn.org/education-services

PUBLIC TELEVISION

WLRN PBS KIDS PROGRAM DESCRIPTIONS (with grade level correlations)

Program Description	Grade	Common Core State Standards
CLIFFORD THE BIG RED DOG Designed for children **(ages 3-7),** this animated television series is based on the books of the same name and uses classic storytelling to present universal social, emotional, and moral messages to young children. These fun-filled episodes follow Clifford and his pals (both canine and human) as they play, discover and interact with each other and the inhabitants of Birdwell Island, learning that good friends are what life is all about. The stories are fun, gentle and kid-relatable — they deal with issues that kids are experiencing: whether it's bragging, not wanting to share or learning that telling the truth is the best policy. More importantly, though, they learn that the world is out there to be discovered with gusto. The series' educational messages focus on simple, tangible life lessons that are designed to help young children navigate their world as they become part of an ever-expanding community.	***Pre K, 1-2***	***A. CCSS: Comprehension and collaboration*** ***B. CCSS: Research to build and present knowledge*** ***C. CCSS: Presentation of knowledge and ideas*** ***D. CCSS: Vocabulary acquisition and use*** ***E. VPK Domain: Language . Communication, and Emergent Literacy*** ***F. Head Start Developmental Framework: Language Development***
MARTHA SPEAKS An animated series aimed at viewers between the **(ages 4-7** starring Martha, a beloved family dog. She is accidentally fed alphabet soup — this gives her the power of speech and the chance to speak her mind to anyone that will listen. The goal of MARTHA SPEAKS is to increase oral vocabulary, the words we use when we talk. The shows are not trying to teach kids how to read. They are designed to help kids understand what words mean when they hear them; words like *retrieve*, *sprout*, and *crave*. Vocabulary is one thing that predicts if children will be good	***Pre-K-2***	***A. CCSS: Vocabulary acquisition and use*** ***B. VPK: Language, Communication, and Emergent Literacy*** ***C. Head Start: Language Development***

Program Description	Age	Common Core State Standards
Martha Speaks(cont) readers. And how better to get kids excited about learning and trying new words. Once they are in school and they see these words, children will need to know what they mean. If children have heard the words before, that familiarity will help them as they learn to read. **MARTHA SPEAKS** is designed to teach up to 20 words in each episode.	***Pre-K-2***	***A. CCSS: Vocabulary acquisition and use*** ***B. VPK Language, Communication and Emergent Literacy*** ***C. Head Start Developmental Framework: Language Development***
CURIOUS GEORGE Aimed at preschool viewers **(ages 3 to 5),** the goal of the series is to inspire children to explore science, engineering, and math in the world around them. And what better guide is there for this kind of exploration than the world's most curious monkey? George lives to find new things to discover, touch, spill, and chew. Everything is new to George and worth investigating. Of course, in George's hands — all four of them — investigation often leads to unintended consequences! Throughout George's adventures, he encounters and models basic concepts in each of the three content areas. Science, engineering, and mathematics are disciplines representing years of accumulated knowledge. The objective of the CURIOUS GEORGE series is to help children appreciate these disciplines and the wealth of knowledge contained in them. Appreciation and understanding begins for young children with exploration, observation, discovery, and most importantly, curiosity. Curious about the world around them, children begin to observe properties, discover how things work, and, ultimately, develop scientific thought processes.	***Toddler Pre-K;-K***	***A. CCSS: Presentation of Knowledge & Ideas*** ***B. VPK: Scientific Inquiry; Physical Science; Life Science; Environmental Awareness*** ***C. Head Start Developmental Framework: Science Knowledge & Skills; Scientific Skills & Methods; Conceptual Knowledge of the Natural & Physical World***
DINOSAUR TRAIN An animated series that embraces and celebrates the fascination that **preschoolers** have with both dinosaurs and trains, while encouraging basic scientific thinking skills as the audience learns about life science, natural history and paleontology. Each episode.	***Pre-K***	***A. VPK: Scientific Inquiry; Life Science*** ***B. Head Start Developmental Framework: Science Knowledge & Skills; Conceptual Knowledge Natural & Physical World***

PROGRAM DESCRIPTION	Age	Common core State Standards
features Buddy, an adorable preschool age Tyrannosaurus Rex, and his adoptive Pteranodon family on a whimsical voyage through prehistoric jungles, swamps, volcanoes and oceans, as they unearth basic concepts in life science, natural history and paleontology.	**(cont.)**	**(cont.)**
SUPER WHY A breakthrough preschool series designed to help kids **(ages 3 to 6)** with the critical skills that they need to learn to read (and love to read!) as recommended by the National Reading Panel (alphabet skills, word families, spelling, comprehension and vocabulary). The Super Readers lead young viewers on engaging reading adventures. They talk to fictional characters from the story, play reading games and activities to overcome obstacles, search for Super Letters, and practice such key skills as letter identification, word decoding, spelling, vocabulary and comprehension. Super Why, who has the Power to Read, can even change a story ending and save the day! (For example: He can change the big bad wolf to a small good wolf!) What's unique about this approach is that while kids are learning and practicing the ABC's of reading, they're also thinking about what they're reading, applying reasoning skills to see the story in a real-life context and experiencing books in a powerful new way.	***Pre-K K; 1***	***A. CCSS: Print Awareness; Phonological Awareness; Phonics & Word Recognition; Fluency; Conventions of Standard English; Knowledge of Language; Vocabulary Acquisition & Use*** ***B. VPK: Language Development; Communication; Emeergent Literacy*** ***C. Head Start Developmental Framework: Language Development; Literacy Knowledge & Skills***
THE CAT IN THE HAT KNOWS A LOT ABOUT THAT!™ The TV series designed to cultivate positive views about science and scientists among the next generation **(ages 5 to 8**) —they children will become tomorrow's citizens and innovators—and help families and teachers build communities of science explorers. Guided by the Cat, the children figure things out by engaging in science inquiry. They ask questions, make observations, make predictions, plan investigations, collect data, make discoveries, and generate and discuss ideas about how the	***K-3***	***A. CCSS: Science Standards***

Program Description	Age	Common Core State Standards
world works. Each adventure revolves around a specific science concept such as bird migration or animal camouflage. The animated clips feature songs and rhymes, interesting science facts, humorous science explorations by Thing One and Thing Two, and interviews of animals by Sally and Nick.	***K-3***	***A. CCSS: Science Standards***
SESAME STREET The children's series that put television to work as an educational tool, and independent research has repeatedly and conclusively proven that the approach succeeds in improving cognitive skills, teaching respect and social skills, and promoting school readiness skills. Children who watch the show as **toddlers** and **preschool** by age **two-year-olds** gain an advantage in math, vocabulary, and other school readiness skills by the time they are five. Sesame Street remains dedicated to its whole child curriculum and core educational objectives by including initiatives that help prepare children for school and help equip them with the skills to succeed in the world. The cornerstone of the curriculum remains the connection between the four main domains: science, technology, engineering and mathematics, but the updated approach integrates the arts which will be used as another context or catalyst for teaching and learning STEM concepts.	***Toddlers Pre-K***	***A. VPK: Approaches to Learning; Social Emotional Development; Problem Solving; Language; Communication & Emergent Literacy; Mathematical Thinking*** ***B. Head Start Developmental Framework: Approaches to Learning; Language Development; Social Emotional Development; Mathematics Knowledge & Skills***
DANIEL TIGER'S NEIGHBORHOOD A new animated program for preschoolers **(ages 2 to 4)** which builds on the pioneering PBS series, Mister Rogers' Neighborhood. This new series, for a new generation of children, tells its engaging stories about the life of a preschooler using musical strategies grounded in Fred Rogers' landmark social-emotional curriculum. Through imagination, creativity and music, Daniel and his friends learn the key social skills necessary for school and for life. With Daniel Tiger as our guide, the series offers a fun, safe place for young children to explore their ever-expanding world, and	***Pre-K***	***A. VPK: Approaches to Learning; Health & Wellness; Self Help; Social Emotional Development*** ***B. Head Developmental Framework: Physical Development & Health; Social Emotional Development; Approach to Learning***

Program Description	Age	Common Core State Standards
teaches them developmentally appropriate pro-social strategies. The stories in the series have all been written with extensive input from a wide range of early learning specialists, formative research with children, and the benefit of the legacy of over forty years of the work of Fred Rogers. It all adds up to a powerful tool for parents – an entertaining but thoughtful parenting guide for today's families that integrates music, interactivity and a research-based curriculum.	**(cont.)**	**(cont.)**
SID THE SCIENCE KID This is an animated television series for children **(ages 3-6)** and the adults who care for them. The programs use comedy to promote exploration, discovery and science readiness among preschoolers celebrating children's natural curiosity about science in everyday life. The main goals of Sid the Science Kid are: to encourage children to think, talk and work the way scientists do by building on preschoolers' natural curiosity about the world; to show that science is all around us – we all interact with and are capable of learning about scientific concepts; to contribute to school readiness by fostering children's intellectual skills, motivation to learn, and confidence in themselves as learners; and to support children's learning by partnering with parents and teachers to create a "climate of curiosity" for children. The conceptual content of Sid is based in national science learning standards, cognitive learning theory, and on the preschool science curriculum, Preschool Pathways to Science ©. By connecting experiences conceptually and exploring topics over an extended period, Sid increases learners' opportunities for discovering important ideas. Early exposure to science can inspire positive lifelong attitudes towards it, empowering children to see themselves as capable learners, and motivating them to learn and do more.	***Pre-K; 2***	***A. CCSS: Science Standards*** ***B. VPK: Scientific Inquiry*** ***C. Head Start Developmental Framework: Science Knowledge & Skills; Scientific Skills & Methods***

Program Description	Age	Grade	Common Core State Standards
WORDGIRL This series follows the everyday life and superhero adventures of "WordGirl" as she fights crime and enriches vocabulary usage, all in a day's work. Disguised as mild-mannered 5th grader, Becky Botsford, WordGirl arrived on planet Earth when she and her monkey sidekick, Captain Huggy Face, crashed their spaceship. In classic superhero form, WordGirl possesses superhero strength with the added benefit of a colossal vocabulary. WordGirl has a family and friends who have no idea of her secret identity. As WordGirl, she battles and prevails over evil (albeit ridiculous and comical) villains. WordGirl enriches young audiences' vocabulary, closes the gap for those who don't grow up in language-rich environments, instills a love of language, and fosters better reading comprehension for children **(ages 5 to 8).**	***5-8***	***K-3***	***A. CCSS: Language; Vocabulary Acquisition***
WILD KRATTS Join the adventures of Chris and Martin Kratt as they encounter incredible wild animals, combining science education with fun and adventure, while traveling to animal habitats around the globe. Each adventure explores an age-appropriate science concept central to an animal's life and showcases a never-before-seen wildlife moment. It's all wrapped up in engaging stories of adventure, mystery, rescue, and the Kratt brothers' brand of laugh-out-loud-comedy that kids love. The educational goals of *Wild Kratts* are to: 1**)** Teach (**ages 6 to 8)** viewers natural history and age-appropriate science by building on their natural interest in animals; **2)** Develop and strengthen basic skills of observation and investigation that children will use increasingly as they continue their study of science; **3)** Build excitement in science that will remain with them throughout their lives.	***6-8***	***1-3***	***A. CCSS: Science Standards***

Program Description	Age	Grade	Common Core State Strandards
CYBERCHASE Developed for kids **(ages 8 to 11)** and packed with mystery, humor, and action, Cyberchase delivers positive messages about math by teaching concepts in a fun way that kids can understand. In the world of Cyberchase, the dastardly villain Hacker is on a mad mission to overthrow Motherboard and take over Cyberspace with the help of his blundering henchbots, Buzz and Delete. But Motherboard enlists the help of three curious kids, Inez, Jackie, and Matt, and their cyberpal, Digit, to stop him. Their weapon: brain power. Every episode is motivated by a math concept centered on national standards. From tackling fractions in ancient Greece to using decimals to repair train tracks in Railroad Repair, kids learn that math is everywhere and a useful tool for solving problems.	***8-11***	***3-6***	***A. CCSS: Math: Operations and Algebraic Thinking***
ARTHUR Aimed at viewers between the **(ages 4 to 8**), ARTHUR's goal is to help foster an interest in reading and writing, and to encourage positive social skills. Based on the children's books by Marc Brown, the show chronicles the adventures of Arthur (an eight-year-old aardvark) through engaging, emotional stories that explore issues faced by real kids. It is a comedy that tells these stories from a kid's point of view without moralizing or talking down. Situations on ARTHUR develop in realistic ways, and don't always turn out as we -- or Arthur and his friends -- might expect.	***4-8***	***Pre-K-3***	***A. CCSS: Range of Reading & Level of Text Complexity; Text Type & Purposes; Production and Distribution of Writing*** ***B. VPK: Social Development; Language, Communication, & Emergent Literacy*** ***C. Head Start Developmental Framework: Social Emotional Development; Language Development: Literacy Knowledge & Skills***
ELECTRIC COMPANY This is an educational television show that dares to speak to youth in the voice of their generation. *The Electric Company* turned on the power of possibility for kids by showing them that learning to read can be fun. With a cool cast of characters, amazing literacy superpowers, side-splitting cartoons, and songs that you can't help dancing along with, this reincarnation of a television classic is sure to make an impact on the newest generation.	***6-9***	***1-4***	***A. CCSS: Comprehension & Collaboration; Presentation of Knowledge & Ideas; Knowledge of Language; Key Ideas & Details***

Program Description	Age	Grade	Common Core State Standards
The Electric Company aims to entertain children between the (**ages of 6 to 9)** while simultaneously teaching four crucial areas of literacy that are challenging for struggling readers. Like the original series, the new show filters these educational goals through pop culture — music, comedy, technology, and celebrities — to create a playful, hip, multimedia experience	**(cont)**	**(cont)**	**(cont)**

Notes:

Exhibit B

Broadcast Station Totals

NEWS

Federal Communications Commission
445 12th Street, S.W.
Washington, D. C. 20554

News Media Information 202 / 418-0500
Internet: http://www.fcc.gov
TTY: 1-888-835-5322

July 19, 2012

BROADCAST STATION TOTALS AS OF JUNE 30, 2012

The Commission has announced the following totals for broadcast stations licensed as of June 30, 2012:

AM STATIONS	4754	
FM COMMERCIAL	6568	
FM EDUCATIONAL	3760	
TOTAL		**15,082**
UHF COMMERCIAL TV	1029	
VHF COMMERCIAL TV	358	
UHF EDUCATIONAL TV	289	
VHF EDUCATIONAL TV	107	
TOTAL		**1,783**
CLASS A UHF STATIONS	406	
CLASS A VHF STATIONS	65	
TOTAL		**471**
FM TRANSLATORS & BOOSTERS	6105	
UHF TRANSLATORS	2993	
VHF TRANSLATORS	1183	
TOTAL		**10,281**
UHF LOW POWER TV	1588	
VHF LOW POWER TV	407	
TOTAL		**1,995**
LOW POWER FM	824	**824**
TOTAL BROADCAST STATIONS		**30,436**

- FCC -

Exhibit C

Auctions and Net Winning Bids

Federal Communications Commission

Auctions

Auctions Summary

- Scheduled Auctions
- Auctions Not Yet Scheduled
- Completed Auctions

Scheduled Auctions

94 FM Broadcast

Auctions Not Yet Scheduled

83 FM Translator

84 AM Filing Window

89 218-219 MHz Service and Phase II 220 MHz Service Licenses

700 MHz D Block

Completed Auctions

	Auction Name	Licenses Auctioned	Licenses Won	Net Winning Bids (M)	Rounds
1	Nationwide Narrowband (PCS) 7/25/1994- 7/29/1994	10	10	$617.007	47
2	Interactive Video and Data Services (IVDS) 7/28/1994- 7/29/1994 Map(s): CMA (Or MSA & RSA) (pdf)	594	594	$213.892	Oral Outcry
3	Regional Narrowband (PCS) 10/26/1994- 11/8/1994 Map(s): RPC (pdf)	30	30	$392.707	105
4	Broadband PCS A and B Block 12/5/1994- 3/13/1995 Map(s): MTA (pdf)	99	99	$7,019.404	112
5	Broadband PCS C Block 12/18/1995- 5/6/1996 Map(s): BTA (pdf)	493	493	$10,071.709	184
6	Multipoint/ Multichannel Distribution Services 11/13/1995- 3/28/1996 Map(s): BTA (pdf)	493	493	$216.240	181
7	900 MHz Specialized Mobile Radio Service	1,020	1,020	$204.267	168

	12/5/1995- 4/15/1996 Map(s): MTA (pdf)				
8	Direct Broadcast Satellite 110 Degrees (DBS) 1/24/1996- 1/25/1996 Map(s): DBS Orbital/Channel Assignments (pdf)	1	1	$682.500	19
9	Direct Broadcast Satellite 148 Degrees (DBS) 1/25/1996- 1/26/1996 Map(s): DBS Orbital/Channel Assignments (pdf)	1	1	$52.295	25
10	Broadband PCS C Block Reauction 7/3/1996- 7/16/1996 Map(s): BTA (pdf)	18	18	$904.607	25
11	Broadband PCS D, E, & F Block 8/26/1996- 1/14/1997 Map(s): BTA (pdf)	1,479	1,472	$2,517.440	276
12	Cellular Unserved 1/13/1997- 1/21/1997 Map(s): CMA (Or MSA & RSA) (pdf)	14	14	$1.843	36
14	Wireless Communications Service (WCS) 4/15/1997- 4/25/1997 Map(s): MEA (pdf), REAG (pdf)	128	126	$13.639	29
15	Digital Audio Radio Service (DARS) 4/1/1997- 4/2/1997	2	2	$173.235	25
16	800 MHz Specialized Mobile Radio Service (SMR) 10/28/1997- 12/8/1997 Map(s): EA (pdf)	525	524	$96.232	235
17	Local Multipoint Distribution System (LMDS) 2/18/1998- 3/25/1998 Map(s): BTA (pdf)	986	864	$578.663	128
18	220 MHz 9/15/1998- 10/22/1998 Map(s): EA & EAG (pdf)	908	693	$21.650	173
20	VHF Public Coast 12/3/1998- 12/14/1998 Map(s): Public Coast Station Areas (pdf)	42	26	$7.459	44
21	Location and Monitoring Services (LMS) 2/23/1999- 3/5/1999 Map(s): LMS (pdf)	528	289	$3.438	54
22	C, D, E, and F Block Broadband PCS 3/23/1999- 4/15/1999 Map(s): BTA (pdf), Spectrum (pdf)	347	302	$412.841	78
23	Local Multipoint Distribution Service (LMDS) Re-Auction 4/27/1999- 5/12/1999 Map(s): BTA (pdf), LMDS Licenses (pdf), LMDS Auction 23 (pdf)	161	161	$45.064	43
24	220 MHz 6/8/1999- 6/30/1999 Map(s): EA & EAG (pdf), 220MHz Phase II Licenses (pdf)	225	222	$1.925	71
25	Closed Broadcast 9/28/1999- 10/8/1999 Map(s): Closed Broadcast Construction Permits (pdf)	118	115	$57.820	35
26	929 and 931 MHz Paging Service 2/24/2000- 3/2/2000 Map(s): MEA (B) (pdf)	2,499	985	$4.122	28
27	Broadcast Auction 10/6/1999- 10/8/1999 Map(s): Closed Broadcast Construction Permits (pdf)	1	1	$0.172	15

28	**Broadcast Auction** 3/21/2000- 3/24/2000 Map(s): Closed Broadcast Construction Permits (pdf)	2	2	$1.210	26
30	**39GHz** 4/12/2000- 5/8/2000 Map(s): EA (pdf)	2,450	2,173	$410.649	73
32	**New AM Broadcast Stations** 12/10/2002- 12/12/2002	3	3	$1.520	14
33	**Upper 700 MHz Guard Bands** 9/6/2000- 9/21/2000 Map(s): MEA (pdf)	104	96	$519.893	66
34	**800 MHz SMR General Category Service** 8/16/2000- 9/1/2000 Map(s): EA (pdf)	1,053	1,030	$319.452	76
35	**C and F Block Broadband PCS** 12/12/2000- 1/26/2001 Map(s): BTA (pdf), Auction 35 Eligibility Status (pdf)	422	422	$16,857.046	101
36	**800 MHz SMR Lower 80 Channels Service** 11/1/2000- 12/5/2000 Map(s): EA (pdf)	2,800	2,800	$28.978	151
37	**FM Broadcast** 11/3/2004- 11/23/2004 Map(s): FM Broadcast Auction No. 37 (pdf)	288	258	$147.876	62
38	**Upper 700 MHz Guard Bands** 2/13/2001- 2/21/2001 Map(s): MEA (pdf)	8	8	$20.961	38
39	**VHF Public Coast and Location and Monitoring Services** 6/6/2001- 6/13/2001 Map(s): Public Coast Station Areas (pdf), LMS (pdf)	257	217	$1.145	34
40	**Paging** 10/30/2001- 12/5/2001 Map(s): EA (pdf), MEA (B) (pdf)	15,514	5,323	$12.897	140
41	**Narrowband PCS** 10/3/2001- 10/16/2001 Map(s): MTA (pdf)	365	317	$8.285	48
42	**Multiple Address Systems Spectrum** 11/14/2001- 11/27/2001 Map(s): EA (pdf)	5,104	878	$1.203	36
43	**Multi-Radio Service** 1/10/2002- 1/17/2002 Map(s): EA (pdf), EA & EAG (pdf), LMS (pdf)	27	27	$1.548	31
44	**Lower 700 MHz Band** 8/27/2002- 9/18/2002 Map(s): CMA (Or MSA & RSA) (pdf), EAG (pdf)	740	484	$88.652	84
45	**Cellular RSA** 5/29/2002- 6/4/2002 Map(s): CMA (Or MSA & RSA) (pdf)	3	3	$15.871	35
46	**1670-1675 MHz Band Nationwide License** 4/30/2003- 4/30/2003	1	1	$12.628	2
48	**Lower and Upper Paging Bands** 5/13/2003- 5/28/2003 Map(s): EA (pdf), MEA (B) (pdf)	10,202	2,832	$2.446	56
49	**Lower 700 MHz Band** 5/28/2003- 6/13/2003 Map(s): CMA (Or MSA & RSA) (pdf), EAG (pdf)	256	251	$56.816	86

50	Narrowband PCS 9/24/2003- 9/29/2003 Map(s): MTA (pdf)	48	48	$0.429	20
51	Regional Narrowband PCS 9/24/2003- 9/25/2003 Map(s): RPC (pdf)	6	5	$0.134	3
52	Direct Broadcast Satellite Service 7/14/2004- 7/14/2004	3	3	$12.200	2
53	Multichannel Video Distribution & Data Service (MVDDS) 1/14/2004- 1/27/2004	214	192	$118.722	49
54	Closed Broadcast 7/23/2003- 7/29/2003	4	4	$4.658	28
55	900 MHz Specialized Mobile Radio Service 2/11/2004- 2/25/2004 Map(s): MTA (pdf)	55	55	$4.861	76
56	24 GHz Service 7/28/2004- 7/28/2004 Map(s): Economic Areas (pdf)	880	7	$0.216	4
57	Automated Maritime Telecommunications System 9/15/2004- 9/15/2004 Map(s): AMTS (pdf)	20	10	$1.057	3
58	Broadband PCS 1/26/2005- 2/15/2005 Map(s): BTA (pdf), MTA (pdf)	242	217	$2,043.230	91
59	Multiple Address Systems Spectrum 4/26/2005- 5/18/2005 Map(s): EA (pdf)	4,226	2,223	$3.866	126
60	Lower 700 MHz Band 7/20/2005- 7/26/2005 Map(s): CMA (Or MSA & RSA) (pdf)	5	5	$0.305	30
61	Automated Maritime Telecommunications System 8/3/2005- 8/17/2005 Map(s): AMTS (pdf)	10	10	$7.094	116
62	FM Broadcast 1/12/2006- 1/31/2006	171	163	$54.260	61
63	Multichannel Video Distribution & Data Service (MVDDS) 12/7/2005- 12/7/2005	22	22	$0.133	3
64	Full Power Television Station Construction Permits 3/15/2006- 3/20/2006	11	10	$23.368	23
65	800 MHz Air-Ground Radiotelephone Service 5/10/2006- 6/2/2006	2	2	$38.339	143
66	Advanced Wireless Services (AWS-1) 8/9/2006- 9/18/2006 Map(s): CMA (Or MSA & RSA) (pdf), Economic Areas (pdf), REAG (pdf)	1,122	1,087	$13,700.267	161
68	FM Broadcast 1/10/2007- 1/17/2007	9	9	$3.264	23
69	1.4 GHz Bands 2/7/2007- 3/8/2007 Map(s): EAG (pdf), MEA (pdf)	64	64	$123.599	267
70	FM Broadcast 3/7/2007- 3/26/2007 Map(s): FM Broadcast Auction No. 70 (pdf)	120	111	$21.301	83
71	Broadband PCS	38	33	$13.932	21

	5/16/2007- 5/21/2007 Map(s): BTA (pdf), MTA (pdf)				
72	220 MHz 6/20/2007- 6/26/2007 Map(s): EA (pdf), EA & EAG (pdf)	94	76	$0.185	44
73	700 MHz Band 1/24/2008- 3/18/2008 Map(s): CMA (Or MSA & RSA) (pdf), Economic Areas (pdf), REAG (pdf) * Auction 73 concluded with 1090 provisionally winning bids covering 1091 licenses and totaling $19,592,420,000, as shown in the Integrated Spectrum Auction System. The provisionally winning bids for the A, B, C, and E Block licenses exceeded the aggregate reserve prices for those blocks. The provisionally winning bid for the D Block license, however, did not meet the applicable reserve price and thus did not become a winning bid. Accordingly, Auction 73 raised a total of $19,120,378,000 in winning bids and $18,957,582,150 in net winning bids (reflecting bidders' claimed bidding credit eligibility), as shown above.	1,099	1,090	$18,957.582	261
77	Closed Cellular Unserved 6/17/2008- 6/17/2008	1	1	$0.025	1
78	AWS-1 and Broadband PCS 8/13/2008- 8/20/2008 Map(s): BTA (pdf), CMA (Or MSA & RSA) (pdf), Economic Areas (pdf), REAG (pdf)	55	53	$21.277	38
79	FM Broadcast 9/1/2009- 9/15/2009	122	85	$5.253	50
80	Blanco Texas Broadcast 7/12/2000- 7/14/2000	1	1	$18.798	16
81	Low Power Television (LPTV) 9/14/2005- 9/26/2005	113	90	$0.835	43
82	New Analog Television Stations 2/5/2002- 2/13/2002	4	4	$5.025	13
85	LPTV and TV Translator Digital Companion Channels 11/5/2008- 11/10/2008	43	30	$0.135	24
86	Broadband Radio Service 10/27/2009- 10/30/2009 Map(s): BRS (pdf)	78	61	$19.427	24
87	Lower and Upper Paging Bands 6/15/2010- 8/6/2010 Map(s): EA (pdf), MEA (B) (pdf)	9,603	4,714	$5.400	318
88	Closed Broadcast 7/20/2010- 7/23/2010	13	13	$1.442	17
90	VHF Commercial Television 2/15/2011- 2/17/2011	2	2	$2.631	14
91	FM Broadcast 4/27/2011- 5/11/2011	144	108	$8.538	62
92	700 MHz Band 7/19/2011- 7/25/2011 Map(s): CMA (Or MSA & RSA) (pdf), Economic Areas (pdf)	16	16	$19.770	30
93	FM Broadcast 3/27/2012- 4/5/2012	119	93	$3.826	37

901	**Mobility Fund Phase I** 9/27/2012- 9/27/2012	14,245	0	$0.000	1

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8.285 +
1.203 +
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80.659 +
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1.057 +
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Exhibit D

Representative Terry Website

http://leeterry.house.gov/index.php?option=com_content&view=article&id=2287%3Aterry-fccs-spectrum-auction-all-about-raising-24-billion&catid=49&itemid=1

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Terry: FCC's spectrum auction all about raising $24 billion

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(/index.php?view=article&catid=49&id=2287%3Aterry-fccs-spectrum-auction-all-about-raising-24-billion&format=pdf&option=com_content)

By Tony Romm
1/9/13 2:55 PM EST

LAS VEGAS — As the FCC hits the gas on its plan to recover broadcast spectrum and sell it to wireless companies, Rep. Lee Terry emphasized the agency is under a strict mandate to raise some big bucks.

"Let's not fool ourselves, the major underlying maybe unstated reason for this auction is the money," said the Nebraska Republican, speaking at the 2013 International CES. "It was estimated we could raise $24 billion. That's not specifically laid out, but I can guarantee you that was part of the discussion. So we want the FCC to design the rules to get us at least $24 billion."

But, he continued, **"So you can see this is not an easy [endeavor] to get the level of spectrum, the amount of spectrum, we need back from the TV broadcasters and other broadcasters, and then, have an auction . . . that's done in a way that maximizes the number of bidders and the amount they're going to bid. In our hearing that we had a few weeks ago, I don't know if we ever came to [a] consensus on the best way to do that."**

Terry's comment about the agency's need to bring in the cash refers to a report by the Congressional Budget Office. That report said spectrum auctions could bring in billions of dollars in new revenue, which could be used for deficit reduction, payments to broadcasters and the creation of a nationwide, public-safety broadband network.

In a sense, the agency now finds itself in something of a policy vice, caught between competing mandates by Congress. For now, the FCC says it's in the midst of soliciting industry feedback on exactly how to conduct the incentive auction. Bill Lake, the chief of the agency's media bureau, emphasized on a panel Wednesday that it is still early in the process for figuring out "how to coordinate the reverse and the forward auction." His boss, Chairman Julius Genachowski, is speaking at CES later in the day.

But Republicans are making clear they're keeping close watch over the process. "There are these three goals," said Neil Fried, chief counsel on technology on the House Energy and Commerce Committee: Obtaining the spectrum and auctioning it, creating jobs through its use and maximizing revenue. For that reason, Fried repeated Republicans' long-held view that there should be "few conditions on the spectrum" while the auction should be open.

See Original Article Here (https://www.politicopro.com/story/tech/?id=17829)

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Exhibit E

MIT Technology Review Article

MIT Technology Review

The Spectrum Crunch That Wasn't

Tiny transmitters, spectrum sharing, and new information- coding technologies promise to keep wireless data capacity increasing for years.

By David Talbot on November 26, 2012

Take a look around at the next ball game or concert you attend. You'll see thousands of fans snapping photos and videos and e-mailing them to friends. Those armies of smartphone owners – and their tablet -toting brethren – are contributing to a striking increase in wireless data usage: Cisco Systems estimates that mobile data traffic will grow by a factor of 18 by 2016, and Bell Labs predicts it will increase by a factor of 25. Intuitively, there's a problem: all these photos and videos go over the airwaves. Yet just a few sections, or bands, in the spectrum of radio frequencies are available to the wireless carriers, which paid billions of dollars for them. Vastly more frequencies are reserved for other uses, from television and radio to aviation and military applications. Data traffic is growing so rapidly that carriers have imposed usage caps and raised prices. Surely, these two basic realities – exploding data use on the one hand, limited bands of spectrum on the other – must mean we will soon run out of airwaves for our gadgets, right?

Just two years ago the chairman of the U.S. Federal Communications Commission, Julius Genachowski, suggested as much. He said the U.S. wireless industry desperately needed to get its hands on underused parts of the spectrum controlled by government agencies or TV broadcasters. Otherwise, wireless companies would find that demand for their services would outstrip their ability to provide them. "If we do nothing in the face of the looming spectrum crunch, many consumers will face higher prices as the market is forced to respond to supply and demand," he declared. Similarly, an AT&T executive, Jim Cicconi, said that "the need for more spectrum is an industry-wide issue and problem."

But these claims were premature. For one thing, spectrum "crunches" – mobile phone usage that overwhelms the available wireless frequencies – would occur at highly specific locations and times. Sometimes, alternative strategies can completely solve these localized problems.

Look around that stadium, for instance, and you'll probably find milk-carton-size boxes tucked away in the rafters. These are short-range Wi-Fi receivers, operating on unlicensed portions of the radio spectrum. Your phone can send data through them instead of on the long-range cell-phone frequencies. The Wi-Fi boxes mop up all the data you send, and route it out of the stadium over a wired Internet connection. So the data sent by you and nearly everyone else in the stadium doesn't touch the precious spectrum that the wireless carriers claim is running out. That clever trick is just one example of the new strategies and technologies that can be brought to bear.

John Donovan, an AT&T executive vice president, said this fall that while the company had bought additional spectrum rights and wanted still more, the immediate crisis had passed, and that half the new demand through 2015 would be handled by small cells. Such technologies have emerged far more strongly than anticipated. "If you looked a few years ago, you'd say we'd be out of spectrum by now," says Vanu Bose, founder of Vanu, a wireless-communications company in Cambridge, Massachusetts. Bose, along with Reed, was a technical advisor on the White House report. "There are lots of ways to satisfy the demand," he says. "Adding spectrum [for commercial services] is certainly one of them, and so are small cells, alternative offloading technologies, and innovations we haven't even conceived of yet."

Eventually, new technologies might free up airwaves by making wireless data transfers happen much more quickly. For example, MIT researchers have shown it's possible to reduce the amount of back-and-forth communication required to deal with dropped packets of data. While the technique may be a few years from being widely implemented, lab demonstrations show that it could increase capacity tenfold. That means you could download your video 10 times faster than you do now, freeing the network that much sooner for someone else to use.

So can new technology stave off a spectrum shortage forever? Perhaps not, but Microsoft's Tennenhouse says that decades of research advances are waiting to be applied to the problem: "Right now, we have a 15- to 20-year backlog of new technologies and architectures ... which can take us a long way into the future."

This story was updated on January 2, 2013.

David Talbot Chief Correspondent

I'm *MIT Technology Review*'s chief correspondent, keeping an eye most often on the world of information and communication technologies—and asking my kids when I don't understand what's going on. Recent projects have taken me to Kenya to write about mobile-phone-based health initiatives, and... continue »

About David »

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Images by Tomi Um

Exhibit F

Testimony of Scott D. Ritchie

Prioritizing Spectral Efficiency

Wireless Carriers have expressed concerns regarding their ability to meet the growing demand for wireless voice and data services. The concern is current and future demand will outpace the carriers existing wireless capacity. This is the basis for requesting additional spectrum allocations.

Expediting the allocation of additional spectrum to wireless carriers will be harmful to the FCC and Federal Government, the public, and to wireless carriers themselves. Maximizing the spectral efficiency of the existing allocations before releasing additional spectrum will result in greater revenue to the FCC long term, provide overall better service to the public, and better prepare wireless carriers for the next inevitable Spectrum Crunch.

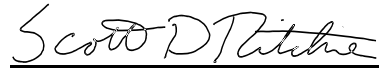
The existing wireless infrastructure is extremely inefficient. Multiple studies are underway that will document wireless usage, including the Microsoft Spectrum Observatory. Preliminary reports show wireless usage at far less than existing spectral capacity. The FCC has a responsibility to encourage and enforce efficient use of existing capacity.

Releasing additional spectrum removes the incentive for wireless carriers to be more efficient with their existing resources. Additional spectrum does not require development of new technologies. In fact, it is a powerful disincentive for carriers to address current capacity shortfalls through technology and infrastructure investment. Spectrum auctions will cost wireless carriers billions of dollars that if allocated to infrastructure improvements would result in a substantial increase in efficiency.

Wireless carriers have resources available today to improve efficiency, and technology continues to improve at a rate similar to the increase in demand. New network infrastructure technologies, advanced compression algorithms, increased backhaul capacity, intelligent antenna technologies, and dynamic frequency allocations are just some of the resources available to operators to improve efficiency.

Spectrum reuse is the most effective tool for improving spectral efficiency. Increased network density is a simple fixed cost alternative to additional spectrum resources. While these improvements are costly, approximately 250,000 new cell sites and backhaul could be built throughout the nation using the estimated budget of $24 Billion for new spectrum acquisition. A network investment of this size could nearly double the current infrastructure, result in a substantial increase in capacity, and increase spectral efficiency. More important, it would better prepare wireless carriers for the future, and make better use of new spectral allocations to come. While this may be an over simplification of the problem, it does accurately illustrate the wide disparity between the cost of network improvements and the proposed investment in new spectrum allocations.

I certify that the forgoing is true and correct to the best of my knowledge and belief. I have over 20 years experience in the wireless and broadcasting industry, and am technically qualified to make these statements.



Scott D. Ritchie
President / Engineer
Cornerstone Wireless Communications, LLC